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c/o ANTHONY CASTORINA
SUITE 207
2001 JEFFERSON DAVIS HIGHWAY
ARLINGTON, VA 22202

EXAMINER

MARVICH, MARIA

ART UNIT	PAPER NUMBER
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1636

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/777,856

Applicant(s)

ARONHEIM ET AL.

Examiner

Maria B Marvich, PhD

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 June 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,6-11,15-20,24-29 and 33-49 is/are pending in the application.
- 4a) Of the above claim(s) 36-49 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-11,15-20,24-29 and 33-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

This office action is in response to an amendment filed 6/3/04. Claims 3-5, 12-14, 21-23 and 30-32 have been cancelled. Claims 1, 6, 9-10, 15, 18-19, 24, 27-28 and 33 have been amended. Claims 1-2, 6-11, 15-20, 24-29 and 33-49 are pending. Claims 36-49 have been withdrawn.

Response to Amendment

Any rejection of record in the previous action not addressed in this office action is withdrawn. The new grounds of rejection herein were necessitated by amendment and, therefore, this action is final.

The Declaration under 37 CFR 1.132 filed 6/3/04 is sufficient to overcome the rejection of claims 1,3,5-8, 18-19 and 23-26 based upon 35 USC 102(e).

Claim Objections

Claim 9 is objected to because of the following informalities: "fused to" is inadvertently repeated twice. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Claims 1-2, 6-11, 15-20, 24-29 and 33-35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-2, 6-11, 15-20, 24-29 and 33-35 are vague and indefinite in that the metes and bounds of “separately expressing” are unclear. It is unclear how the first and second polynucleotides are expressed separately. Are the polynucleotides expressed in separate cells or on separate ribosomes or in separate compartments in the cell? It is unclear how the skilled artisan will determine whether the polynucleotides have been successfully expressed separately.

This is a new rejection necessitated by applicants’ amendment.

Claims 1-2, 6-11, 15-20, 24-29 and 33-35 are vague and indefinite in that the metes and bounds of “absence of expression of said first polypeptide” are unclear. As recited, both polynucleotides are expressed even if separately. Therefore it is unclear how the first polynucleotide can be absent. **This is a new rejection necessitated by applicants’ amendment.**

Claim Rejections - 35 USC § 112, first paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-2, 6-11, 15-20, 24-29 and 33-35 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably

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convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The limitation that the first and second polynucleotides are "separately expressed" has been added to claims 1-2, 6-11, 15-20, 24-29 and 33-35. Applicant has not indicated where support for this limitation is found. The examiner has been unable to find literal support in the originally filed specification for the term "separately expressed". Therefore, the limitation of adding any "separately expressed" is impermissible NEW MATTER.

The limitation that the cell lacks "a Ras activity" has been added to claims 1-2, 6-11, 15-20, 24-29 and 33-35. Applicant has not indicated where support for this limitation is found. The examiner has been unable to find literal support in the originally filed specification for the term "a Ras activity". The specification teaches use of cells lacking Ras activity which by rescue of Ras activity are used as an indication of interaction between a first and second polypeptide. Neither a Ras activity nor specific Ras activity is so described in the specification rather phenotypic expression of Ras is indicative of an interaction between the two polypeptides.. Therefore, the limitation of "a Ras activity" is impermissible NEW MATTER.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1 and 6 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 3-4 of copending Application No. 09/765,298, now US 6,582,927. **This rejection is maintained from the office action mailed 2/5/04 and has been reworded based upon applicants' amendment.**

Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims recite a method of identifying interactions between polypeptides in which a polypeptide that interacts with the plasmalemma (or plasma membrane) and mutant Ras fused to a second polypeptide are expressed in a yeast cell. Phenotypic expression of Ras is indicative of an interaction between the two polypeptides. The difference between the two sets of claims is found in the recitation in the instant claims that the first and second polynucleotides are separately expressed and Ras activity is detected in the presence and absence of expression of the first polypeptide. It is unclear how to accurately measure separate expression and absent evidence to the contrary, the two nucleic acids of 6,582,927 are separately expressed. It would have been obvious to someone of skill in the art to assess Ras activity in the presence and absence of expression of the test polypeptide that is separately expressed as recited in the instant invention to determine phenotypic expression of functional Ras as taught in US 6,582,927 given that the basis of said comparison is to provide an accurate measure of phenotypic expression. A person of skill in the art would have been motivated to develop the method step of the instant invention encompassing the means to assess phenotypic expression due to the ease and success provided that enables successful omission of false positives. Given

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the teachings of the cited art and the level of skill of the ordinary skilled artisan at the time of the applicant's invention, it must be considered that said ordinary skilled artisan would have had a reasonable expectation of success in practicing the claimed invention.

Additionally, if a patent resulting from the instant claims was issued and transferred to an assignee different from the assignee holding a patent from, then two different assignees would hold a patent to the claimed invention of, and thus improperly there would be possible harassment by multiple assignees.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 6-8, 18-19 and 24-26 rejected under 35 U.S.C. 102(a) as being anticipated by Takemaru and Moon, The Journal of Cell Biology 149(2), April 17, 2000, pages 249-254, see entire document. **This rejection is maintained from the office action mailed 2/5/04 and has been reworded based upon applicants' amendment.**

Takemaru and Moon teach expression of pRas(61) Δ F- β catR8-C an expression vector comprising c-HaRas mutant and β -catenin in a cdc25-2 yeast strain (endogenous ras is inactive) (see e.g. page 25, column 1, paragraph 3). Library cDNAs are fused to the v-Src myristoylation

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sequence targeted to the plasma membrane (plasmalemma) and introduced into the Ras transfected yeast strains to identify polypeptides that interact with pRas(61) Δ F- β catR8-C as characterized by Ras activity. A clone expressing CBP was identified upon isolation of a subset of cells (see e.g. page 251, column 1, paragraph 4).

The amendments to the claims indicate that the polynucleotides are “separately expressed”. In light of the vague and indefinite nature of this language, it is unclear what is intended by the limitation that the polynucleotides are “separately expressed”. For purposes of applying Takemaru and Moon, it is understood that as pRas(61) Δ F- β catR8-C and the cDNA fused to the v-Src myristoylation sequence are on separate vectors, and therefore will be separately expressed. Furthermore, the amendments to the claims state that Ras activity is detected in the presence and absence of the first polynucleotide. It is the difference between the two that indicates an interaction between a first and second polypeptide. In Takemaru and Moon, cells were assayed for Ras activity based upon the introduction of a first polynucleotide. However, it is inherent that upon introduction of polynucleotides from a library, some of the clones will contain the first polynucleotide and some of the clones will not. Clones are isolated that contain polynucleotides that interact with pRas(61) Δ F- β catR8-C based upon their ability to generate Ras activity as compared to clones that do not contain polynucleotides and hence do not interact with pRas(61) Δ F- β catR8-C.

Response to Arguments

Applicants traverse the claim rejections under the judicially created doctrine of obviousness-type double patenting and under 35 USC 102(a) on pages 10-12 of the amendment

filed 6/3/04. Applicants argue that the amended claims are patentably distinct from the instant application. Specifically, a limitation of separately expressing the first and second polynucleotides has been added to the claims. As well, the method includes the limitation that Ras activity is detected in the presence and absence of expression of the first polypeptide. This step is said to reduce false positives uniquely.

Applicants' arguments filed 6/3/04 have been fully considered but they are not persuasive. It is not clear how the limitation that the first and second polynucleotides are "separately expressing" distinguishes the instant invention from Takemaru and Moon. Takemaru and Moon express a first polynucleotide, cDNA that interacts with β -catenin fused to the v-Src myristoylation sequence and a second polynucleotide, pRas(61) Δ F- β catR8-C. These polynucleotides absent evidence to the contrary are expressed separately on separate vectors. Because the Office does not have the facilities for examining and comparing the applicant's product with the products of the prior art, the burden is on the applicant to show a novel or unobvious difference between the claimed products and the products of the prior art (e.g. that the products of the prior art do not possess the same material structural and functional characteristics of the claimed product). See *in re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977).

Applicants state that the method as amended recites the limitation that Ras activity is detected in the presence and absence of the first polynucleotide. It is the difference between the two that indicates an interaction between a first and second polypeptide. In Takemaru and Moon, the cdc25-2 yeast strain is transfected with pRas(61) Δ F- β catR8-C and vector comprising a library of sequences fused to a myristoylation sequence. Some of the cells then receive the "first polynucleotide" which contains a polypeptide that interacts with β -catenin and some do

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not. Hence it is inherent in the teachings of Takemaru and Moon that the cells are transfected in the presence and absence of the first polynucleotide.

Conclusion

No claims allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maria B Marvich, PhD whose telephone number is (571)-272-0774. The examiner can normally be reached on M-F (6:30-3:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Remy Yucel, PhD can be reached on (571)-272-0781. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Maria B Marvich, PhD
Examiner
Art Unit 1636

August 21, 2004


GERRY LEFFERS
PRIMARY EXAMINER